Deltech®

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High Pressure Air Drying Technologies

DHP Series Dryers

HPF Series Filters

SPX Air Treatment

DHP Series Refrigerated Dryers and HPF Series Filters

DHP Series

Contaminant Removal Systems to 900 psig (63 bar)

Deltech DHP Series Refrigerated Dryers and HPF Series Filters combine to deliver technologically advanced compressed air purification systems. Built to handle the pressure, industries such as PET blow molding, injection molding, aeronautical valve and control testing all demand clean, dry compressed air. DHP Series dryers and HPF Series Filters can be combined to remove the particles, water, oil and oil vapor contaminants from high pressure compressed air.

Profit from ISO 8573.1 Air Quality

Profits grow as improved air quality increases productivity, extends equipment life, and reduces rejects. Simply, identify the ISO 8573.1 Air Quality requirements that meet your needs. Choose the proper DHP Series dryer to handle the pressure and volume. Then, select the best combination of HPF Series Filter Grades to deliver the optimum level of protection for your applications.

DHP Series Refrigerated Dryers deliver 38°F (3°C) Pressure Dew Points

Dry compressed air requires pressure dew point control. Otherwise, the water vapor will condense into liquid water as it cools. DHP Series dryers combine durable stainless steel plate type heat exchangers, rugged refrigeration compressors and ozone-friendly HFC refrigerant to deliver stable design dew points.

HPF Series Coalescing Filters Remove Water Droplets and Solid Particles to 0.01 Micron

Atmospheric water vapor condenses into aerosols as compressed air cools. It collects on the filter fibers and coalesces into droplets. Particulates come from ambient air contaminants like dust and from rusted, oxidized air piping. Quality filtration protects sensitive applications and equipment from contaminant based malfunctions.

HPF Series Coalescing Filters Remove Oil and Oil Vapors to 0.0008 ppm (0,001 mg/m³)

Hydrocarbons are present in the atmosphere and are condensed during the compression process. Lubricated compressors inject oil directly into the air and some liquid oil and oil vapors carryover into the air system. The proper combination of HPF Filters provides the exact level of system protection needed to meet your ISO 8573.1 Air Quality requirements. Include Grade 1 Filtration to deliver oil-free compressed air to critical applications such as in the food, pharmaceutical, process, and packaging industries.

ISO 8573.1 Air Quality Standards

Quality Classes	Solids max. particle size in microns	Moisture Dew Point °C	°F	Oil Liquid & Gas mg/m³	ppmw/w
0	as specified	as specified		as specified	
1	0.1	-70	-94	0,01	0.008
2	1	-40	-40	0,1	0.08
3	5	-20	-4	1	0.8
4	15	3	38	5	4
5	40	7	45	>5	>4
6	—	10	50	—	—


Compressor | Receiver Tank | HPF Series Grade 9 | DHP Dryer | HPF Series Grades 7 & 3

High Pressure Filtration

HPF Series Filters Offer 5 Grades of High Pressure Filtration

1. Grade 9 Separator/Filter removes bulk liquid and particles to 3 micron. Maximum inlet liquid load: 25,000 ppm w/w. Ideal as a particulate prefilter for DHP Series High Pressure Refrigerated Dryers.
2. Grade 7 General Purpose 1 micron particulate filter. Ideal as the first afterfilter after a high pressure refrigerated dryer.
3. Grade 5 High Efficiency Oil Removal Filter eliminates oil aerosols to 0.008 ppm (0,01 mg/m^3). Maximum inlet liquid load: 1,000 ppm w/w.
4. Grade 3 Maximum Efficiency Oil Removal Filter eliminates oil aerosols to 0.0008 ppm (0,001 mg/m^3). Maximum inlet liquid load 100 ppm w/w. This is the preferred "second afterfilter" for oil removal in high pressure systems.
5. Grade 1 Oil Vapor Removal Filter utilizes activated carbon to eliminate oil vapors to 0.003 ppm (0,004 mg/m^3).

DHP Series Refrigerated Dryers Feature

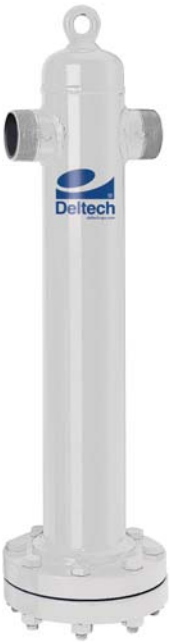
Instrumentation

- DHP Series models 13 through 178 feature: a power-on light which indicates when the dryer is energized and a high temperature warning light which gives immediate indication of malfunction or overload condition. A standard 6 foot power cord is included
- DHP Series models 50 through 178 also feature: On/off switch and a refrigeration suction pressure gauge to indicate proper system operation
- DHP Series models 300 through 3750 feature the following gauges: suction pressure gauge, inlet temperature gauge, outlet temperature gauge
- DHP Series models 300 through 3750 feature the following lights: power-on, compressor-on, high evaporator temperature, refrigerant fault alarm. A high pressure reset switch is standard. An optional disconnect switch can also be supplied (pictured)

DHP Series control panel with optional disconnect switch below

Integral HPF Series Filtration

- Integral Grade 9 Separator/Filters are standard on all DHP Series models for air flows at 64 scfm and above. A two-stage process first removes the bulk liquid to 10 micron which has condensed in the heat exchangers using stainless steel orifice tubes. The second stage has in-depth coalescing fiber media which captures solid particulates to 3 micron and oil droplets to 5 ppm w/w (6 mg/m^3)
- An automatic electric drain provides reliable condensate removal and the ability to program valve open time and time between cycles



HPF Series

Compact Heat Exchangers

- Models 13 through 100 utilize smooth surface, self-cleaning copper heat exchangers.
- Models 300 through 3750 feature space-saving, smooth surface, stainless steel plate heat exchangers designed for high heat transfer efficiencies

Environmentally Friendly Refrigeration System Design

- Environmentally friendly HFC refrigerants are utilized on all models: models 13 through 1000 utilize R-134a and models 1250 through 3750 feature R-404a designs.
- Tight refrigeration temperature control is achieved even during rapid load changes which ensures the DHP Series will provide consistent dew points

Table 1 - DHP Series Engineering Data

Model	Flow[1] scfm (m³/h)	Pressure Drop[1] psig (bar)	MWP psig[6] (bar)	Refrigeration System[2] HP (kW)	Standard Voltages[3]	In/Out Connections NPT[4]	Dimensions in (mm) H	W	D	Weight[5] lb (kg)	HPF Series Filters 1 Micron	0.0008 ppm Oil
DHP13	13 (22)	1.2 (0.08)	500 (35)	1/6 (0.25)	1,2,4,5	3/8" OD	14 (356)	16 (410)	15 (381)	57 (26)	HPF60-7	HPF60-3
DHP20	20 (34)	2.4 (0.17)	500 (35)	1/5 (0.37)	1,2,4,5	3/8" OD	14 (356)	16 (410)	15 (381)	65 (30)	HPF60-7	HPF60-3
DHP50	50 (86)	1.8 (0.12)	500 (35)	1/4 (0.56)	1,2,4,5	1/2"	17 (432)	22 (565)	16 (406)	104 (48)	HPF60-7	HPF60-3
DHP93	93 (160)	0.9 (0.06)	500 (35)	1/2 (0.92)	1,3,4,5	1"	23 (589)	32 (819)	20 (495)	206 (94)	HPF60-7	HPF60-3
DHP64	64 (110)	0.2 (0.01)	900 (63)	1/2 (0.92)	1,3,4,5	1"	23 (589)	32 (819)	20 (495)	186 (85)	HPF60-7	HPF60-3
DHP178	178 (306)	0.8 (0.06)	500 (35)	3/4 (1.18)	1,3,4,6	1 1/2"	23 (589)	32 (819)	20 (495)	235 (107)	HPF60-7	HPF60-3
DHP100	100 (172)	0.5 (0.03)	900 (63)	3/4 (1.18)	1,3,4,6	1"	23 (589)	32 (819)	20 (495)	208 (95)	HPF60-7	HPF60-3
DHP300	300 (515)	4.1 (0.28)	725 (50)	1 (1.1)	7,8,9,10,11	1"	43 (1092)	38 (965)	32 (813)	370 (168)	HPF60-7	HPF60-3
DHP500	500 (859)	5.8 (0.40)	725 (50)	1.5 (1.98)	7,8,9,10,11	1"	43 (1092)	38 (965)	32 (813)	380 (172)	HPF60-7	HPF60-3
DHP750	750 (1288)	7.3 (0.50)	725 (50)	2 (2.35)	7,8,9,10,11	1-1/2"	43 (1092)	38 (965)	44 (1118)	465 (211)	HPF100-7	HPF100-3
DHP1000	1000 (1717)	11.8 (0.81)	725 (50)	3 (3.69)	7,8,9,10,11	1-1/2"	43 (1092)	38 (965)	44 (1118)	480 (218)	HPF250-7	HPF250-3
DHP1250	1250 (2146)	10.7 (0.74)	725 (50)	4 (5.34)	7,8,9,10,11	1-1/2"	43 (1092)	38 (965)	44 (1118)	590 (268)	HPF250-7	HPF250-3
DHP1750	1750 (3005)	9.5 (0.65)	725 (50)	6 (7.65)	7,8,9,10,11	3" or DN80	50 (1270)	48 (1219)	50 (1270)	1025 (465)	HPF250-7	HPF250-3
DHP2000	2000 (3434)	11.8 (0.81)	725 (50)	7.5 (9.81)	7,8,9,10,11	3" or DN80	60 (1524)	48 (1219)	50 (1270)	1300 (590)	HPF250-7	HPF250-3
DHP3000	3000 (5151)	11.8 (0.81)	725 (50)	10 (14.06)	7,8,9,10,11	3" or DN80	60 (1524)	48 (1219)	50 (1270)	1565 (710)	HPF625-900-7	HPF625-900-3
DHP3750	3750 (6439)	10.7 (0.74)	725 (50)	12 (16.47)	7,8,9,10,11	3" or DN80	60 (1524)	48 (1219)	50 (1270)	1585 (719)	HPF625-900-7	HPF625-900-3

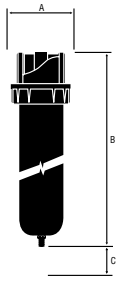
Dimensions and weights are for reference only. Request certified drawings for construction purposes. (1) Flow and pressure drop at MWP (Maximum Working Pressure) and at 60 Hz, 100°F, 38°C inlet and 100°F, 38°C ambient temperature (2) Figures shown are condensing unit manufacturer's published ratings @ 35°F, 2°C evaporator and 100°F, 38°C ambient (3) 1. 115/1/60 2. 230/1/60 3. 208-230/1/60 4. 100/1/50 5. 220-240/1/50 6. 230/1/50 7. 208-230/3/60 8. 460/3/60 9. 200-220/3/50 10. 400/3/50 11. 575/3/60 (4) BSP available upon request. (5) Air-cooled models. Contact factory for water-cooled weights. (6) CSA certified models approved to 700 psig Maximum Working Pressure.

Table 2 - Correction Factors for Compressed Air Inlet Temperature and Pressure

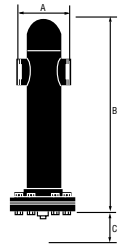
Inlet Pressure	Inlet Temperature 80°F (27°C)	90°F (32°C)	100°F (38°C)	110°F (43°C)	120°F (49°C)
300 psig to MWP	1.49	1.19	1.00	0.83	0.72
20 bar to MWP					

Table 3

Correction Factors for Ambient Air Temperature Temp.	Correction
80°F (27°C)	1.12
90°F (32°C)	1.06
100°F (38°C)	1.00
110°F (43°C)	0.94
Water-cooled (85°F, 27°C Cooling Water)	1.15



Models HPF60-HPF250



Models HPF625-HPF118750

Table 4 - Correction Factors for Outlet Pressure Dew Point

Dew Point	ISO 8573.1 Class	Factor
38°F (3°C)	4	1.0
45°F (7°C)	5	1.2
50°F (10°C)	6	1.3

Table 5 - Correction Factors for Electrical Frequency

60 Hz	1.00
50 Hz	0.83

Table 6 - HPF Series High Pressure Filter Specification

Model Number	Max Operating Pressure psig	(bar)	Max Flow @ MOP scfm	(m³/h)	Flow @100 psig scfm	(m³/h)	In/Out Conn.	Dimensions in (mm) A*	B	C	Weight lb (kg)	DHP SERIES Replacement Elements Grade 9	Grades 1,3,5,7,9	QTY
HPF60-(grade 1,3,5,7,9)	1000	(69)	530	(900)	60	(105)		4.25 (108)	15.38 (391)	6.75 (172)	19 (8.7)	E9-60	E(1,3,5,7)-60	1
HPF100-(grade 1,3,5,7,9)	1000	(69)	884	(1,502)	100	(170)	1" NPT/BSP	4.25 (108)	15.38 (391)	6.75 (172)	20 (9.1)	E9-100	E(1,3,5,7)-100	1
HPF250-(grade 1,3,5,7,9)	1000	(69)	2,210	(3,755)	250	(425)		4.25 (108)	21.75 (552)	6.75 (172)	27 (12.0)	E9-250	E(1,3,5,7)-250	1
HPF625-500-(grade 1,3,5,7,9)	500	(35)	2,805	(4,985)	625	(1,110)		10.25 (260)	40.63 (1032)	24 (610)	37 (16.6)	E9-WV	E(1,3,5,7)-WV	1
HPF625-900-(grade 1,3,5,7,9)	700	(48)	4,000	(6,915)	625	(1,110)		10.25 (260)	39.69 (1008)	24 (610)	128 (58.0)	E9-WV	E(1,3,5,7)-WV	1
HPF1000-(grade 1,3,5,7,9)	650	(45)	4,050	(6,885)	1,000	(1,700)	3" NPT/BSP	16.00 (406)	46.88 (1191)	24 (610)	270 (122.0)	E9-1000	E(1,3,5,7)-1000	2
HPF1250-(grade 1,3,5,7,9)	650	(45)	5,060	(8,605)	1,250	(2,125)		16.00 (406)	46.88 (1191)	24 (610)	270 (122.0)	E9-WV	E(1,3,5,7)-WV	2
HPF1875-(grade 1,3,5,7,9)	650	(45)	10,885	(18,494)	1,875	(3,158)		16.25 (413)	54.13 (1375)	24 (610)	294 (133.0)	E9-WV	E(1,3,5,7)-WV	3
HPF2500-(grade 1,3,5,7,9)	440	(30)	9,900	(16,870)	2,500	(4,250)	4" ANSI Flg	20.00 (508)	55.50 (1410)	24 (610)	403 (183.0)	E9-WV	E(1,3,5,7)-WV	4
HPF3125-(grade 1,3,5,7,9)	440	(30)	12,375	(21,075)	3,125	(5,310)	4" ANSI Flg	20.00 (508)	55.50 (1410)	24 (610)	405 (184.0)	E9-WV	E(1,3,5,7)-WV	5
HPF5000-(grade 1,3,5,7,9)	360	(25)	16,350	(27,770)	5,000	(8,490)		24.00 (610)	55.88 (1419)	24 (610)	524 (238.0)	E9-WV	E(1,3,5,7)-WV	8
HPF6875-(grade 1,3,5,7,9)	330	(23)	20,695	(35,110)	6,875	(11,670)	6" ANSI Flg	28.00 (711)	63.88 (1622)	24 (610)	693 (314.0)	E9-WV	E(1,3,5,7)-WV	11
HPF8750-(grade 1,3,5,7,9)	330	(23)	26,340	(44,680)	8,750	(14,850)		28.00 (711)	63.88 (1622)	24 (610)	700 (318.0)	E9-WV	E(1,3,5,7)-WV	14
HPF11875-(grade 1,3,5,7,9)	260	(18)	28,380	(48,370)	11,875	(20,175)	8" ANSI Flg	33.00 (838)	66.25 (1683)	24 (610)	980 (445.0)	E9-WV	E(1,3,5,7)-WV	19

NOTE: Dimensions and weights are for reference only. Request certified drawings for construction purposes. * Models HPF2500 and larger delivered with flange

Table 7 - Inlet Pressure Correction Factors

To find the maximum flow at pressures other than the MOP, multiply 100 psi flow (@ 100 psig from Table 1) by correction factor corresponding to minimum pressure at the inlet of the filter. Do not select filters by pipe size; use flow rate and operating pressure.

Minimum Inlet Pressure	psig	100	150	200	250	300	350	400	450	500	550	600	700	800	900	1,000
	bar	6.9	10.3	13.8	17.2	20.7	24.1	27.6	31	34.5	37.9	41.4	48.3	55.2	62.1	69.0
Correction Factor		1.00	1.44	1.87	2.31	2.74	3.18	3.62	4.05	4.49	4.92	5.36	6.23	7.10	7.97	8.84

Example: To size a filter for 1000 scfm at a pressure of 500 psi: 1. Choose approximate filter size, HPF250-(grade 1,3,5,7,9). 2. Multiply the rated flow at 100 psi by the correction factor (250 scfm x 4.49 = 1,122 scfm) 3. Compare maximum calculated flow (1,122 scfm) to the required flow (1,000 scfm) 4. If the calculated flow is greater than the required flow, the filter can be used. If the calculated flow is less than the required flow, repeat the sizing process with a larger filter.

SPX DELTECH

Improvements and research are continuous at SPX Deltech. Specifications may change without notice.

Bulletin DHP-5100-NA-1

SPX Air Treatment
1000 Philadelphia Street
Canonsburg, PA 15317-1700 U.S.A.
Phone: 724-745-8647 • Fax: 724-745-4967
Email: deltech.inquiry@airtreatment.spx.com
www.deltech-spx.com

SPX Air Treatment Canada
1415 California Avenue
Brockville, ON , Canada , K6V 7H7
Phone: 613-345-2280 • Fax: 613-345-7240
Email: deltech.inquiry@spxairtreatment.ca
www.deltech-spx.com